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THE BRENNER

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November 27, 1942

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THE BRENNER

Summary and Conclusion

1. Because approximately fifty percent of the normal war time traffic between Germany and Italy passes over the Brenner, this is the most important direct route between Germany and Italy. If the Brenner line, either north or south of Fortezza, were rendered totally useless, only one-sixth of its total traffic could be diverted to the Fortezza - Spittal branch line which connects with the Tauernbahn.

2. The Brenner Pass, between Innsbruck and Bolzano, does not provide a large number of targets highly vulnerable from the air. The Pass itself is a low saddle, the hills on either side rising gently. The terrain actually ~~crossed by~~ The gradient of the line is ~~not~~ generally ~~rugged or steep~~ moderate. The track passes over few deep gorges and through a small number of narrows, all of which are cut through solid rock. There are 60 railway bridges along the line between Innsbruck and Bolzano. Most of these bridges, however, are short, low, and built of stone. Only eight of these bridges have a span of more than 20 meters. Most of the 22 tunnels on the line are of short or middling length. The longest tunnel is the Mühlbach Tunnel between Patsch and Matrei, 1,040 yards.

3. It is almost impossible to interrupt for a longer period the electric power transmission for traction purposes on the German side. On the Italian side the electric power for the railway is generated in the Cardano power station near Bolzano, which can be said to provide an accessible target.

4. Most of the route is fortified and heavily guarded.

5. The most promising possible targets along this line in the order of importance and destructibility are as follows:

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a. Bridge. Between Bressanone and Albes, approximately five kilometers south of Bressanone, at the point where the railway line crosses the Isarco river, is the longest bridge (stone) of the entire line.

b. The Roethel Bridge, the second longest bridge and the longest steel bridge. This bridge is located on the southeast side of Ponte all'Isarco.

c. The Mules (Mauls) Bridge. At Mules, 46 kilometers south of Innsbruck, there is the second largest stone bridge on the route. This bridge is known to have a span of 46 yards.

d. Bridge. The bridge over the Rentscherbach at Bolzano is one of the larger bridges on the line.

e. The Cardano Hydro-electric Power Station. Cardano is three kilometers east of Bolzano.

f. The longest tunnels are: Muehltal Tunnel, located between Patsch and Matrei, 1,040 yards long; the Lasta (Aster) Tunnel, at the tip of the hairpin curve between Moncucco and Colle Isarco, 835 yards long; the Iselberg Tunnel, located two kilometers south of Innsbruck under Berg Isel, 715 yards long.

g. Particularly vulnerable is the railway line on the southern approach to the Pass, between Moncucco (8 kilometers from the Brenner Pass, altitude 4,072 feet) and Colle Isarco (17 kilometers from the Pass, altitude 3,494 feet). There are three bridges and a tunnel (see f) on this hairpin curve.

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THE BRENNER

I. General Remarks

As the principal direct railroad connection between Germany and Italy, the Brenner railroad is of the greatest importance to the Axis in its conduct of the war in the Mediterranean. The line connects the Innsbruck-Munich-Berlin, Innsbruck-Salzburg-Linz-Berlin, and Linz-Vienna routes in the north with the Bolzano-Verona-Milan, Verona-Trieste, and the Verona-Bologna-Rome routes in the south. All these routes and many of their branches are highly efficient. Most of them are electrified.

From Innsbruck in the north to Bolzano in the south the railroad and the highway follow closely the courses of the Sill and Isarco rivers. Although the railroad traverses a distance of 130 kilometers, the actual distance between the two points is only 86 kilometers as the plane flies. In general the terrain crossed by the line is not steeply mountainous, and the track passes over few deep gorges or valleys. The pass itself is in the form of a long and high saddle. Thus the line ascends gradually but steadily from an altitude of 1,883 feet at Innsbruck and reaches its highest point of 4,495 feet at the Brenner Pass itself. From the summit the line descends to an altitude of 1,837 feet at Bressanone and of only 872 feet at Bolzano. The grades attain a maximum of 2.5 percent (1:40) from Innsbruck to Brenner, of 2.25 percent (1:44) from Brenner to Bressanone, and of 1.5 percent (1:67) from Bressanone to Bolzano. However, only 113.6 kilometers, or 8.9 percent of the entire line lies upon a level plane. 48.5% of the line is curved.

Over some parts of the route from Innsbruck to Bolzano the railroad winds through narrow valleys with fairly steep walls, where the ever-present

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danger of landslides makes railroad building difficult. This is true of the stretches between Patsch and Matrei, Brennero and Vipiteno, ~~Males and~~ Fortezza, and Chuisa and Campodazzo. Notable narrows are: (51) Sachsenlemme (granite); (48) Sprechenstein (syenite); (53) Brixener Klause (granite); (64-65) "Kuntersweg" near Castelrotto (porphyry gorge). In the area north and south of the Brenner Pass precipitation during the winter is comparatively low. During the months from December to March snow falls on about 35 days. On each of these days the average depth of the snowfall is from 13 to 15 centimeters. The German and the Italian railroads operate heavy electrically-driven snow plows by which the line can be cleared without delay. It is reported that during a period of 15 consecutive years no interruption of traffic by snowfall has occurred.

II. Electrification

Both approaches are electrified. The system of electrification on the German side is that generally used in Germany by the railroads (15,000 Volt, AC, single phase, 16 2/3 cycles). From Brenner to Trento AC, 3,700 Volt, three phases, 16 2/3 cycles is used. On the newly electrified stretch from Trento to Bologna the 3,000 Volt DC system, which is now in operation on most Italian main lines, has been installed. (The correctness of a report that the system on the line from Brenner to Trento has recently been converted into the 3,000 Volt DC system could not be verified.) The power on the German side is primarily produced in the Achenseewerk and in the Rutzwerk, both hydro-electric power plants. The Achenseewerk is located on Lake Achensee (North Tyrol). The Rutzwerk is just south of Innsbruck. The railroad generators in these sections have a capacity of 18,000 and 15,000 KW respectively. The high tension power line over which the current is carried

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to the railroad substations is connected with the other hydro-electric power stations in this formerly Austrian region (Spullersee, Stubach, and Mallnitz) and with the Bavaria hydro-electric power system. On the Italian side the current of the particular type which is required for the Brenner-Trento line is produced at the Cardano hydro-electric power station, located 1.5 miles north of Bolzano. It has 3 indoor and 1 outdoor generators and produces 550 million KWh annually for electric traction and industrial purposes. Two outgoing lines of 65 KV feed the railroad substations, while a high tension power line of 250 KV connects with Cistazo near Milan.

III. Importance of The Brenner and Its Traffic

1. Capacity of the Brenner Route. The Brenner is by far the most convenient route for traffic between Germany and Italy. The Swiss lines cannot be used for troop movements, and the Eastern frontier lines can be reached only over longer distances to and from the German and Italian industrial centers. It may be taken for granted that the Swiss routes are used only for freight traffic, particularly coal. So long as the Brenner is viable the eastern routes will be used only for shipments between points in Italy and in Austria and the Balkans. The Brenner line is the main thoroughfare for troop and supply movements.

The capacity of the Brenner route has been rated by reliable sources at 72 trains daily in each direction moving at medium speed. For August, 1942 the maximum daily southbound traffic has been estimated at 25 military, 45 freight and 10 passenger (incl. express) trains, totalling 80 trains. This means that about half of all German-Italian military and freight traffic moved over this frontier point. This represents normal war-time maximum traffic. Should, however, a German army be transported into Italy and all main frontier lines from the Mont Cenis to the Ogulin-Fiume

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lines be pressed into service, a total maximum of 212 troop and supply trains could be operated. The 72 trains which in this case would travel over the Brenner would constitute one-third of this entire movement.

2. Alternate Routes

a. General Description of Routes. In case of an interruption of the Brenner there is no substitute route available in the west between the Swiss borderline and the pass. East of the Brenner route a line branches off at Fortezza which connects with the Tauernbahn at Spittal (Millstättersee) via San Candido on the German-Italian frontier. This branch line is electrified between Fortezza and San Candido whereas steam traction is used between this station and Spittal. The Tauernbahn is electrifed between Schwarzach-St. Veit and Mallnitz. It is a single track line. Only through the Tauern tunnel is there a second track. The Tauernbahn joins the Salzburg-Innsbruck line at Schwarzach-St. Veit. It connects with the Italian railroads via Villach at Tarvisio and via Villach-Jesenize at Piedicolle. The capacity of the Tauernbahn is estimated at 24 trains and that of the Fortezza-Spittal line at 12 trains daily in each direction.

b. Via The Tauernbahn. In case of an interruption of the Brenner line north of Fortezza, southbound trains from Munich, Innsbruck or Salzburg could be operated over the Tauernbahn and via San Candido to Fortezza. This, however, would be feasible only if the capacity of the Tauernbahn were not required for other purposes. This substitute route could carry only one-sixth of the possible Brenner traffic and its use would cause considerable delay.

c. Via Villach. A similar situation would prevail if the Brenner route were interrupted south of Fortezza. Southbound trains from the Brenner could be operated via Fortezza-San Candido-Spittal to the Italian

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frontier stations Tarvisio or Piedicolle. In this case also, only one-sixth of the possible Brenner traffic could be diverted and this would be possible only if the lines south of Spittal were not required for other movements. It goes without saying, that this circuitous routing would cause the loss of even greater time than that discussed under b.

d. Northbound Traffic. Similar possibilities to those discussed for the southbound traffic would exist for the northbound traffic if the Fortezza-Spittal line and connections were to be employed as a substitute route.

IV. Fortification and Protective Measures.

It is known that the southern, the Italian, side of the Brenner Pass is heavily fortified. Fortifications are built into the rocks, and it may be assumed that these fortifications include anti-aircraft batteries. (See Appendix II) Certain knowledge as to the fortification of the German side is not available.

The German portion of the Brenner railroad is under the protection of the German Railway Police (Bahnpolizei), armed with rifles and light and heavy machine guns. The German Railways also have their own A.R.P. organization. In addition, German troop-transport trains are usually protected by anti-aircraft guns, mounted on railway cars and constantly manned. Not infrequently, SA. storm troopers are also employed to guard railways, bridges, and roads.

German trains with civilian passengers leaving Innsbruck for the Brenner Pass are inspected at Innsbruck by the German Frontier Police (Grenzpolizei), a special branch of the Gestapo. From Innsbruck to the Italian frontier the interior of the trains is constantly patrolled by the Frontier Police, who maintain a special unit for this purpose (Grenzpolizeiposten Brenner-Bahn). The areas surrounding the German portion of the Brenner

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railroad are policed by the Alpine Gendarerie (Hochgebirgsgendarmerie), while the main highways are supervised by the Motorized Gendarmerie. Sometimes the Motorized Gendarmerie is reinforced by units of the National Socialist Motor Corps (N.S.K.K.). During large troop movements the N.S.K.K. units are stationed at critical points along the highways

V. Construction

1. General. The Brenner line is double-tracked throughout its entire length from Innsbruck to Bolzano, and is equipped with numerous sidings. It contains a total of 22 tunnels and 60 bridges. In spite of this, however, the line is chiefly remarkable for its engineering simplicity. The chief objective of its builders was to avoid the building of viaducts and high bridges wherever possible. Instead, side valleys were entered with hairpin curves as at St. Jodok and Colle Isarco, or else the main stream itself was rerouted through a tunnel while the railway was carried over a dam across its old channel, as at Matrei.

It is noteworthy that most of the tunnels, and all of the major tunnels with the single exception of the Lasta (Aster) Tunnel at the tip of the hairpin curve between Moncucco and Colle Isarco, are located in the northern third of the line between Innsbruck and the pass. Sixteen of the total of 22 tunnels are between Innsbruck and Matrei. On the other hand, most of the bridges, and all of the larger bridges, are to be found in the stretch south of the pass.

A large proportion of the track from Innsbruck to Bolzano rests upon supporting embankments of earth or stone. The most extensive of such works are located in the section between Chiusa and Bolzano, where there are numerous fills, cuts through solid walls of rock, embankments, and supporting walls on both sides and below the tracks.

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2. Bridges. As has already been pointed out, the Brenner line contains no great feats of engineering skill. The guiding principle in the construction of the line was the desire to avoid the expense of viaducts and high bridges. The carrying out of this objective was made possible by the topographical nature of the region through which the line passes. None of the peaks immediately surrounding the pass exceed 12,500 feet in altitude. The pass itself is 4,495 feet.

Thus the bridges along the line are almost exclusively short, low, arched structures, supported by heavy stone piers with a small opening in the center for the passage of the water. Frequently a river has been turned aside from its natural course and forced to run through a small tunnel through the mountain side. From this tunnel it emerges through a small opening in a wall built against the slope, across which the railroad tracks have been laid.

Thus there are only 8 bridges with a span of more than 22 yards in the entire stretch of line from Innsbruck to Bolzano. Only one is located in the northern third of the line. The largest of these is the bridge over the Isarco between Bressanone and Albes. The Röthel Bridge southeast of Ponte all'Isarco is the second largest. The arched bridge over the Isarco at Mules has a span of 46 yards. The bridge over the Rentscherback at Bolzano also ranks among the larger bridges on the line.

The line possesses a small number of steel lattice frame bridges. The largest of these is the Röthel Bridge, already mentioned. In addition there is a steel bridge at Cardona over the Eggenthal River, one over the Isarco at Albes, one at Finsterbach, and one over the Isarco at Campodazzo.

There are few very large bridges in the German section of the line. The largest are the bridge over the Sill at Sonnenburg (with a span of 28 yards),

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the two bridges at the castle and market of Matrei (each with a span of 21 yards), and the bridge at Steinach (with a span of 17 yards).

The only highway bridge of importance is the Unterberg-Stefans Bridge, which crosses the Ruzbach as it joins the Sill River just south of Innsbruck. It is located at an altitude of 2,323 feet and has a span of 47 yards.

3. Tunnels. From Innsbruck to Bolzano the Brenner line contains a total of 22 tunnels, most of them medium or short. They total some 5,748 yards in length, or 4.2 percent of the total length of line. For the most part they are concentrated in the northern third of the line. Sixteen are located between Innsbruck and Matrei alone. In order to avoid the construction of large bridges, numerous tunnels were built not for traffic but for the passage of rivers which were turned aside from their natural courses.

The principal railway tunnels are as follows:

The Iselberg Tunnel

Located just south of Innsbruck, under the Berg Isel, 715 yards long.

The Sonnenburg Tunnel

Located just south of the Iselberg Tunnel, 225 meters long (about 246 yards).

The Mühltal Tunnel

Located between Patsch and Matrei, 1,040 yards long. It is the longest tunnel between Innsbruck and Bolzano.

St. Jodok Tunnel

Curved tunnel under the Volser Bach at the tip of the hairpin curve at Stafflach. It is 510 yards long.

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The Stafflacher Tunnel

Curved tunnel at the southern base of the St. Jodok curve, 284 meters long (308 yards).

The Lasta (Aster) Tunnel

Curved tunnel, 835 yards long, located at the tip of the hairpin curve between Moncucco and Colle Isarco.

Hoch Klausen Tunnel

Located between Prato all'Isarco and Cardano, 426 yards long.

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APPENDIX

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Description of the Railway Line Between Innsbruck and Bolzano.

The strategic points along the line from Innsbruck to Bolzano are described below. The numbers in the text refer to the numbers on the accompanying map.

1. Innsbruck

The town of Innsbruck (population 70,000) is located on the Inn River at an altitude of 1,883 feet. It is an important railway junction where the lines from Munich via Mittenwald and Kufstein, from Vienna via Salzburg, from Lake Constanz and from the Brenner come together. The station has several platforms, a considerable number of tracks, and a roundhouse. From this point the line begins its ascent of 2,612 feet to the Brenner.

2. The Iselberg Tunnel

Located under the Berg Isel, approximately 1.6 kilometers south of Innsbruck. It is 715 yards long.

3. The Sonnenburg Tunnel

Located about 3.5 kilometers south of Innsbruck. It is about 225 meters or 400 yards long.

4. Bridge

The line crosses the Sill just below the Sonnenburg Tunnel. The bridge has a span of 28 yards and is the largest bridge on the German section of the line.

5. Bridge

Overpass across a small river branching off the Sill toward the left.

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6-7. Tunnels

Two small tunnels are located in close proximity to each other approximately 6.25 to 7 kilometers south of Innsbruck as the Sill bends toward the left. They are about 165 and 88 yards long respectively.

8. Unterberg-Stefans Bridge

Here is located the only large highway bridge on the route. The road crosses the Reuzbach as it enters the Sill on its descent from the Stubai Tal, about 8 kilometers along the highway from Innsbruck. It is at an altitude of 2,323 feet, and has a span of 47 yards.

9-11. Tunnels

Three secondary tunnels of approximately 109, 219, and 109 yards in length respectively follow each other in rapid succession as the line approaches Patsch, which is situated half a mile above the line at an altitude of 2,572 feet. The tunnels lie between about 7.65 and 10.8 kilometers south of Innsbruck.

10-11. The Innsbruck Power Station

Located between tunnels (10) and (11).

12. Bridge

The line crosses a small stream branching off the Sill to the left, at about 11 kilometers from Innsbruck.

13-16. The Mühltal Tunnel

Three tunnels follow each other in rapid succession in the first half of the section from Patsch to Matrei. The Mühltal Tunnel in the center (14) with a length of 1,040 yards is the longest tunnel along the entire route from Innsbruck to Bolzano. It is preceded and followed by smaller tunnels, the northernmost of which is roughly 109 yards long and the southern one roughly 82 yards long. Between the Mühltal and the third tunnel the line passes over

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a small stream branching off the Sill to the left. The first and last tunnels are located approximately 13 and 15 ~~yards~~ Kilometers respectively from Innsbruck.

17. Bridge

Here the line crosses a stream branching off the Sill to the left, approximately 16 kilometers from Innsbruck.

18. Tunnel

Here, at about 18 kilometers from Innsbruck, is located a small tunnel, approximately 88 yards long.

19. Bridge

The line here crosses over a small stream branching off the Sill at approximately 19 kilometers from Innsbruck.

20-24. Matrei (See Map 8)

The village of Matrei is located at an altitude of 3,258 feet. It is 20 kilometers from Innsbruck by rail and 14.4 km. by plane, and it has a population of 550. The village is preceded in the north by a steepled church which is a notable landmark. Just before the line reaches the church, the river loops sharply to the left beyond the line followed by the railroad. The elevation in the center of the loop is topped by Lautson castle, another noteworthy landmark. As the railroad approaches the first river crossing, the track lies along a high embankment across the old river bed. A little to the left a dam serves to turn aside the course of the river which runs under the railroad line. After passing over this bridge the railroad enters a tunnel (21) about 109 yards long and emerges at the other side to pass over a bridge crossing the second loop of the river. Both have a span of 21 yards. Just before reaching the church at the southern base of the river's loop, the line crosses a road branching to the right (23). As the line passes the

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village of Matrei itself, which is situated on the opposite side of the river, the line passes under a second road branching to the left. Immediately afterwards the line crosses to the left over the Sill and the highway (25 and 26).

27. Bridge

The line passes over a bridge with a span of 17 yards across the Sill opposite the village of Steinach. The village is 25 kilometers from Innsbruck by rail and 19 kilometers by air, and is at an altitude of 3,438 feet. It has a population of 450.

28. Bridge

The line crosses a small stream branching off the Sill to the left just below Steinach.

29. Tunnel

The line passes through a small tunnel, approximately 44 yards long, at 28 kilometers by rail from Innsbruck.

30-32. St. Jodok Tunnel (~~See Map 9~~)

At Stafflach, situated at an altitude of 3,609 feet. It is located 30 kilometers by rail and 22 kilometers by air from Innsbruck. A river branches off to the left and the railroad also turns sharply to the left in a hairpin curve through the Schmirner Tal. The village of St. Jodok is located in the valley south of the branch river, where the latter divides into two smaller streams at about 1 kilometer east of the main course of the Sill. The tip of the hairpin curve crosses both of these smaller streams. (30 and 32). Between these crossings is located the curved St. Jodok Tunnel across the Valser Bach. It is 510 yards long.

33. Stafflacher Tunnel

At the base of the curve of St. Jodok, as the line resumes its former position parallel to the Sill and the highway, it passes through the

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curved Stafflacher Tunnel, approximately 308 yards in length.

34-35. Gries, Tunnels

The town of Gries, with a population of 900, is situated at 35 kilometers by rail and 26 kilometers by air from Innsbruck at an altitude of 4,118 feet. A tunnel of about 109 yards length is located about 550 yards north of the town. (34) A second smaller tunnel follows the town at about the same distance.

36. Bridge

The line crosses a small stream branching off the Sill to the left.

37. Bridge

The line crosses a small river branching off the Sill to the left.

38. Bridge

The line crosses the Sill for the last time before reaching the Italo-German frontier.

39. Brennero

Situated at an altitude of 4,495 feet, 40 kilometers by rail and 30 kilometers by air from Innsbruck, Brenner Station has several sets of tracks. Military barracks and the barracks of the customs officers are near the station. None of the surrounding mountain peaks attain a height of more than 12,500 feet.

40. Tunnel

The line passes through a small tunnel approximately 46 kilometers from Innsbruck by rail.

41. Bridge

The line crosses a stream branching off the Isarco to the right.

42. Bridge

The line crosses a second branch river.

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43. Tunnel

Tunnel about 109 yards long, located 48 kilometers by rail from Innsbruck.

44. Tunnel

About 109 yards long. Located 49 kilometers by rail and 31 kilometers by air from Innsbruck.

45. Bridge

The line crosses a stream branching off the Isarco to the right.

46. The Lasta (Aster) Tunnel (See Map 10)

Located at the tip of the 4 kilometers long hairpin curve north of the Fleres river between Moncucco (Giggelberg) and Colle Isarco (Gossensass). Moncucco (Giggelberg) is 48 kilometers by rail and 35 kilometers by air from Innsbruck, at an altitude of 4,070 feet. Colle Isarco, situated between the Isarco and the highway at the southern base of the Lasta curve, is at an altitude of 3,495 feet, and has a population of 620. It is 57 kilometers by rail and 37 kilometers by air from Innsbruck. The curved Lasta Tunnel is 835 yards long.

47. Bridge

The line crosses the Isarco at the base of the Lasta Curve.

48. Bridge

The line crosses a stream branching off the Isarco to the left, at about 59 kilometers by rail from Innsbruck.

49. Vipiteno (Sterzing) - Bridge

Located at an altitude of 5,110 feet, 63 kilometers by rail and 42 kilometers by air from Innsbruck, with a population of 2,000. It is situated to the left of the Isarco. To the right of the river the railroad line crosses a branch stream.

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50. Campo di Trens (Freienfeld)

Located at an altitude of 3,067 feet, 68 kilometers by rail and 45 kilometers by air from Innsbruck. It is situated left of the highway, railroad, and river.

51. Bridge

The line crosses the Isarco at about 70 kilometers by rail and 45 kilometers by air from Innsbruck.

52. Mules (Mauls) - Bridge

The village of Mules is situated at an altitude of 2,950 feet, and about 71 kilometers by rail and 46 kilometers by air from Innsbruck. It is on the left bank of the river. On the opposite side of the river and slightly north of Mules the line crosses a branch river. This is the second largest arched bridge on the route, and has a span of 46 yards.

53. Bridge

The line crosses a stream branching off the Isarco to the right, about 74 kilometers by rail from Innsbruck.

54. Bridge

The line crosses a river branching off the Isarco to the right, about 76 kilometers by rail from Innsbruck.

55. Fortezza (Franzensfeste)

The ancient fortress town of Fortezza, situated on the right bank of the Isarco at an altitude of 2,451 feet, is a notable landmark. It is 81 kilometers by rail and 56 kilometers by air from Innsbruck. At this point the line crosses a stream branching off the Isarco to the right.

56. Railroad

A branch railroad line crosses the Isarco to the left and enters the Puster Valley, about 84 kilometers by rail and 59 kilometers by air south

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of Innsbruck. It leads to Villach and Marburg, where it connects the Brenner line with the Vienna-Trieste railroad.

57. Bridges

Near the town of Varna, and about 90 kilometers by rail from Innsbruck, the line crosses over two small streams.

58. Bressanone (Brixen)

The town, with a population of 5,200, is situated on the right bank of the Isarco where it is joined by the Rienz. It has an altitude of 1,837 feet, and is 92 kilometers by rail and 64 kilometers by air from Innsbruck.

59-63. Bridges

The town of Albes (63) is located approximately 97 kilometers by rail from Bressanone. In the short section between the two towns of Albes and Bressanone the railroad first crosses a small stream branching off the Isarco to the right (59). The line next crosses a bridge over the highway (60) and then passes over a second branch stream (61) about 96 kilometers by rail from Innsbruck. The line next crosses the Isarco. This is the largest bridge on the entire line. At Albes a third branch stream is crossed.

64. Bridge

The line passes over a branch stream at the village of Gudon (Gufidaun), 100 kilometers by rail from Innsbruck.

65. Chiusa (Klausen)

The town, with a population of 900, is situated on the right bank of the Isarco. It has an altitude of 1,716 feet, and is 109 kilometers by rail and 70 kilometers by air from Innsbruck. At this point a railroad leading to the Dolomites branches off the main line toward the left. It follows the main line south to Ponte all'Isarco, where it turns sharply eastward. At Chiusa both the Brenner line and the branch road cross a small stream branching

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off the Isarco to the left.

66. Bridges

Both the main and the branch railroad lines pass a stream branching off the Isarco to the left.

67. Ponte all'Isarco(Waidbruck) - Röthel Bridge

Located at an altitude of 1,545 feet, 120 kilometers by rail and 74 kilometers by air from Innsbruck. The line crosses a branch river. This is the largest iron bridge on the route.

68. Bridge

The line crosses the Isarco at about 111 kilometers by rail from Innsbruck.

69. Bridge

The line crosses a stream branching off at Isarco to the right.

70. Bridge

The line crosses the Isarco.

71. Campodozzo (Atzwang) - Bridge

Located at an altitude of 1,156 feet - 117 kilometers - by rail and 80 kilometers by air from Innsbruck. Five small tunnels follow each other in rapid succession in the first quarter of the section from Campodozzo to Prato all'Isarco. The line crosses the Isarco over an iron bridge.

72. Tunnels

Two small tunnels located in the first kilometer of line below Campodozzo.

73. Bridge

The line crosses a branch stream, approximately 119 kilometers by rail from Innsbruck.

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74. Prato all'Isarco (Blumau)

Located at an altitude of 1,037 feet, 120 kilometers by rail and 85 kilometers by air from Innsbruck. The line crosses a branch stream at this point.

75. Bridge

The line crosses a stream branching off to the south of the Isarco.

76. Hochklausen Tunnel

Located approximately 122 kilometers by rail from Innsbruck. It is 426 yards long.

77. Cardano (Klausen)

Located at an altitude of 928 feet, 127 kilometers by rail and 85 kilometers by air from Innsbruck. It is the site of the Eisak power station. At this point the line crosses first the Eggen Thal river, which branches off the Isarco to the south, and then the Isarco itself. The bridge over the Eggen Thal is of ~~iron~~ steel and is one of the larger bridges on the route.

78. Bridge

The line crosses a small stream branching off the Isarco to the north.

79. Bolzano

Bolzano, with a population of 35,000, is situated at an altitude of 872 feet, 130 kilometers by rail and 86 kilometers by air from Innsbruck. There is an ~~iron~~ steel bridge over the Rentscherbach at Bolzano. At this point the line crosses the Isarco for the last time.

(Copy of part of A-43-1028, dated October 25, disseminated November 17)

APPENDIX II

OFFICE OF STRATEGIC SERVICES
Washington, D. C.

"After an interruption that lasted for three and a half months, the Germans have, lately, again began with works on the construction of fortifications around the Brenner. They are intended to reach, as it is being said, as far as Innsbruck.

"There are passing across the Brenner and the Tauern Mountains, towards the East, numerous transports of war-material, particularly, however, of winter equipment. The number of railway transports with troops is not so big."

Verbatim from Czechoslovakian sources

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